DATE 30 Sep 03

USAMMDA INFORMATION PAPER

PRODUCT: SHIGELLA FLEXNERI 2A VACCINE (SC602)

DESCRIPTION: The *Shigella flexneri* 2a vaccine (SC602) is a live, oral, attenuated vaccine developed at the Institut Pasteur and manufactured as a lyophilized product in the Walter Reed Army Institute of Research pilot vaccine production facility. The SC602 strain is attenuated (weakened) by the inactivation of two genes that play a role in the bacterium's ability to cause disease in humans. *Shigella* bacteria cause diarrhea accompanied by fever, nausea, vomiting and abdominal cramps. Illness typically lasts four to seven days. The initial watery diarrhea can progress rapidly to bloody diarrhea (dysentery) in a matter of hours. Diarrhea can be voluminous and result in severe dehydration. Shigellosis (bacillary dysentery) occurs throughout the developing world in areas where U.S. Forces are likely to deploy. Shigellosis is second only to upper respiratory infections as the most frequent and widespread debilitating disease to deployed military Forces. During Operation Desert Shield/Storm, 57 percent of troops in Saudi Arabia experienced diarrhea. *Shigella* bacteria accounted for approximately 30% of the cases and caused the most severe disease.

PROGRAM RELEVANCE to the ARMY: This vaccine supports both the core mission of the Army and the Army Transformation. Of the Army's core competencies, this product supports: "Shape the Security Environment," "Forcible Entry Operations," "Sustained Land Dominance" and "Support Civil Authorities" by protecting U.S. Forces against diarrheal illness and dysentery caused by *Shigella flexneri*. The *Shigella flexneri* vaccine will enhance the survivability and sustainability of U.S. Forces in regions of the world where diarrheal illness and dysentery caused by *Shigella flexneri* are endemic. In addition, this product supports Future Operational Capability MD97-007 (Preventive Medicine).

ISSUES/ ACTIONS:

- Prior Phase 1 safety and immunogenicity studies in U.S. adult volunteers established a dose of 10^4 organisms as safe and immunogenic for that population. Although secondary transmission of the vaccine strain has not been observed in prior studies, uncertainty remains about the risks of secondary transmission to close contacts of vaccines and shedding of the vaccine strain into the environment
- A Phase 2 study in Israeli adult volunteers and adult household contacts is planned for 1QFY04 to assess the hypothetical risks of secondary transmission to close contacts of vaccine recipients.
- A final vaccine formulation, suitable for large-scale, pivotal efficacy trials in the field, is not yet available. A major pharmaceutical company has expressed interest in developing a commercial manufacturing process for the vaccine. The company is negotiating a license with the Institut Pasteur.

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DA PROJECT/TASK: Infectious Diseases
PE/PROJ 643807.808ND
MAMP RANK: 6/36
ARMY ORD: Draft

SCHEDULE:

MS I	2QFY98
MS B	3QFY02
MS FRP	2QFY06

For additional information, contact: Pharmaceutical System Division, DSN 343-2051, Comm. 301-619-2051